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INVENTOR:

REPLACEMENT SHEET
AMAT/1717.D2/CMP/ECP/RKK
10/611,589
JUNE 30, 2003
CONFIRMATION: 5241
APPLIED MATERIALS, INC.
METHOD AND APPARATUS FOR ANNEALING COPPER FILMS
CHEN, ET AL.

SHEET 1 OF 8

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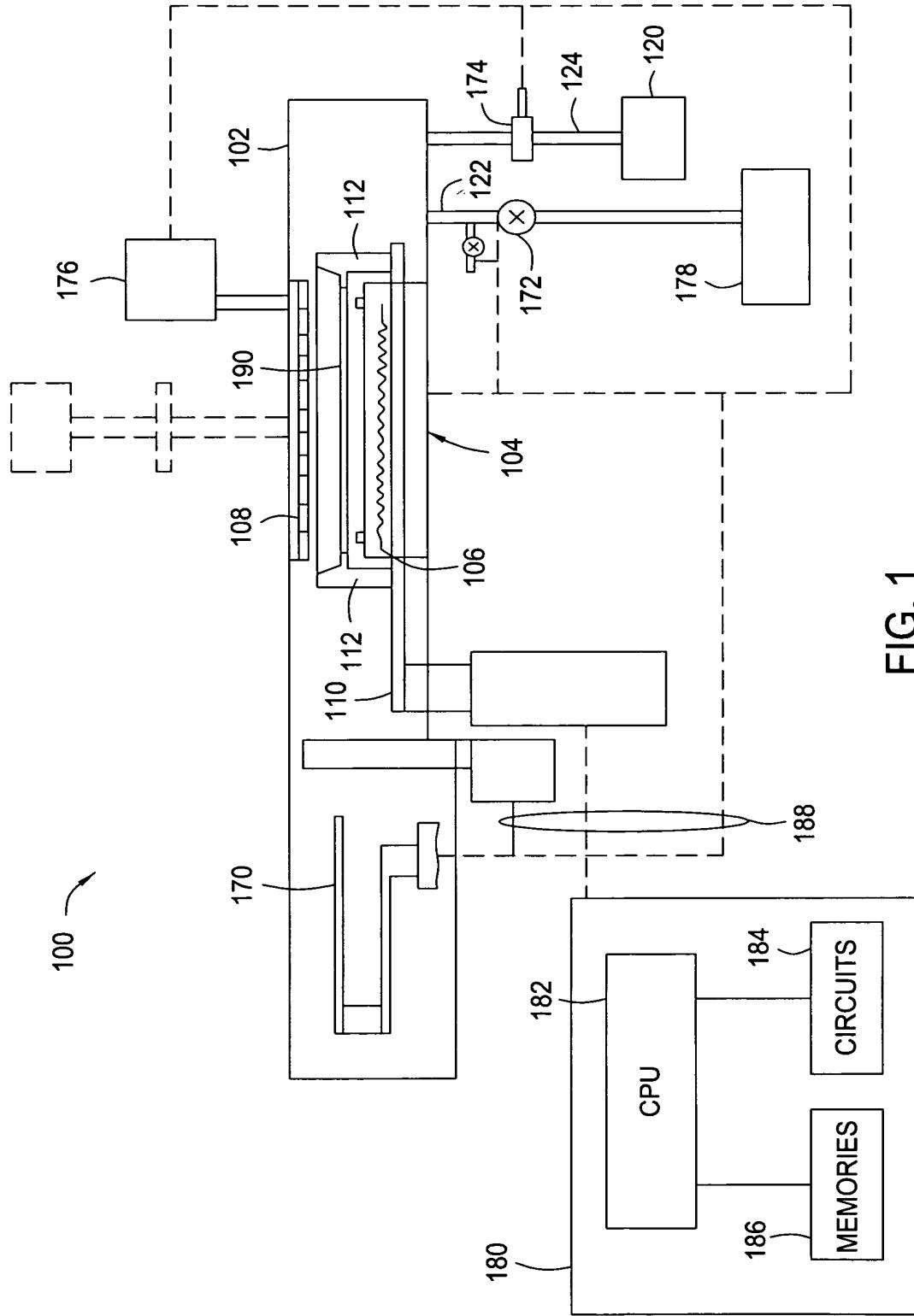


FIG. 1



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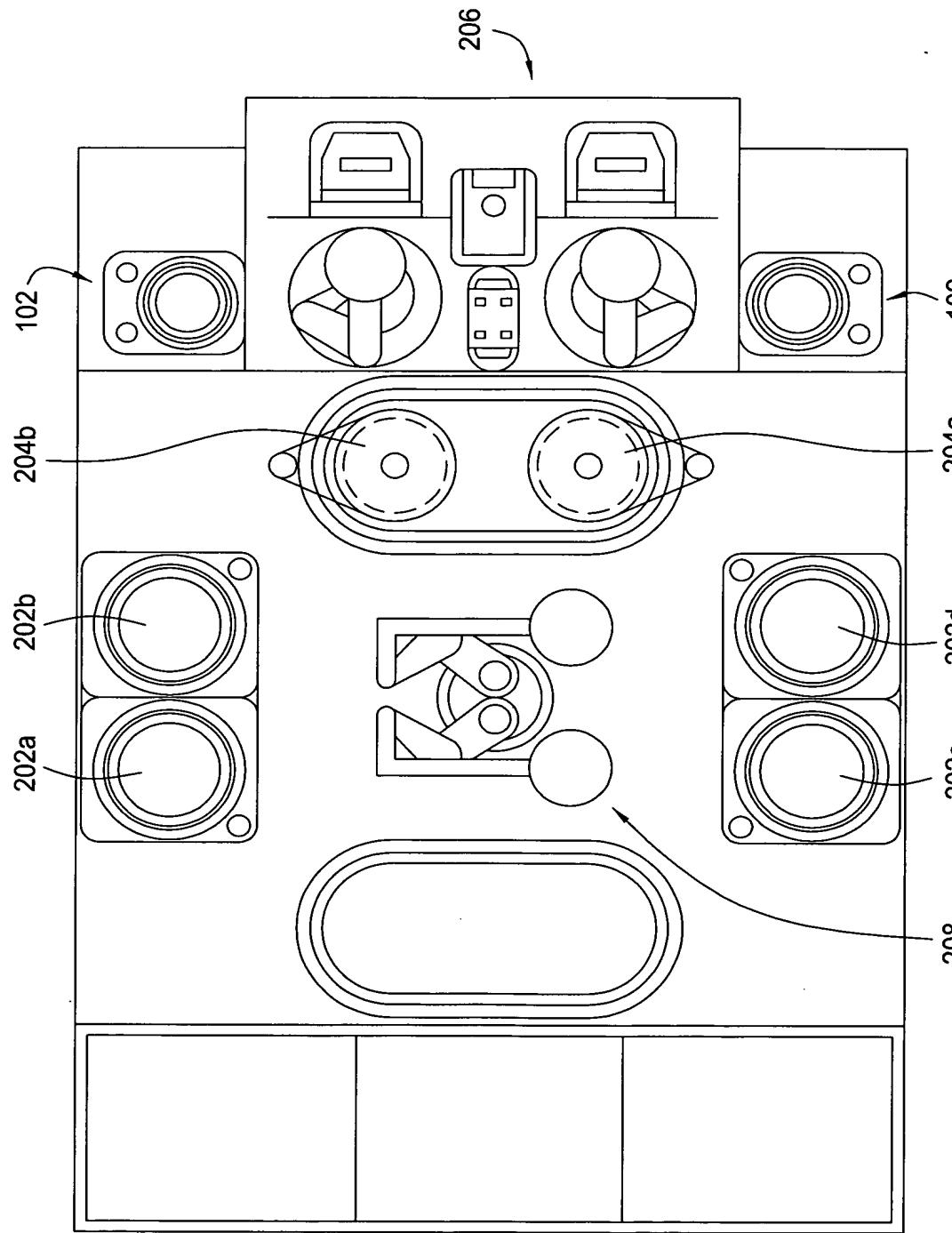


FIG. 2



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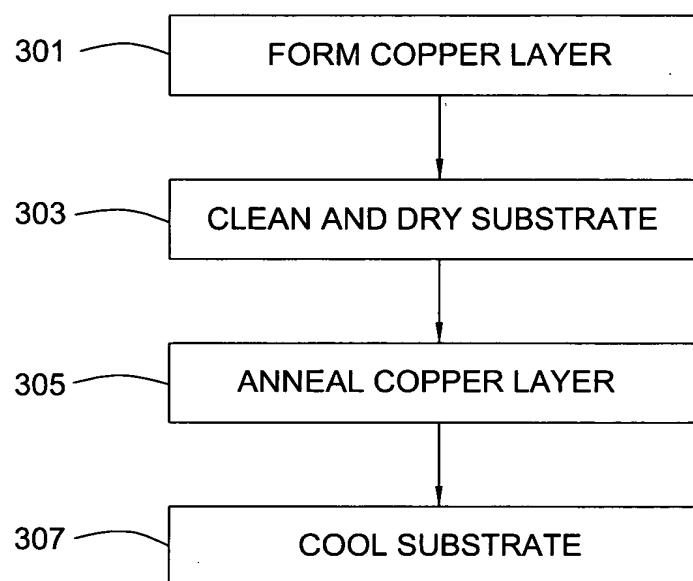


FIG. 3



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FIG. 4A

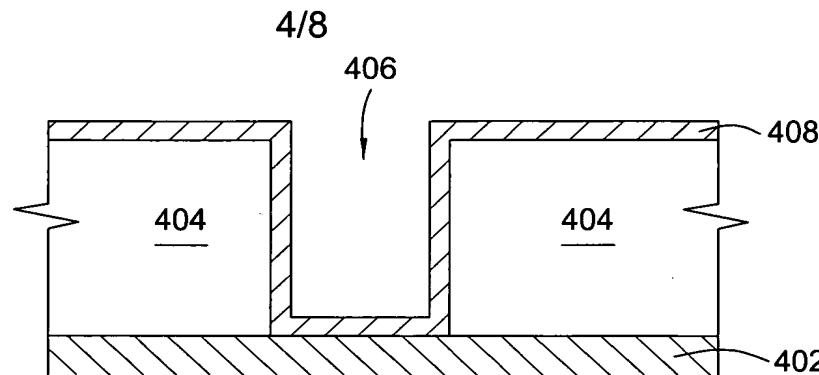


FIG. 4B

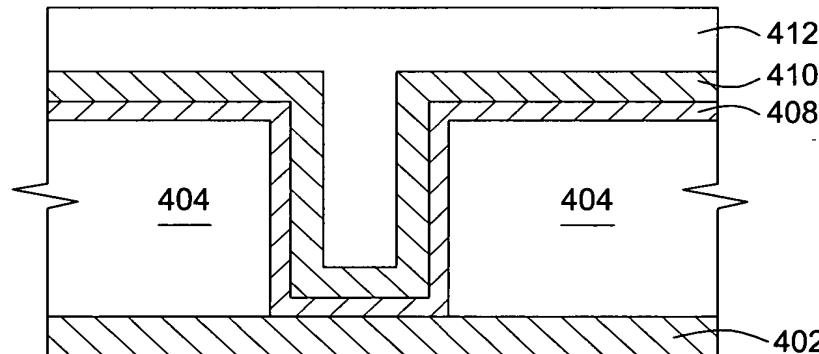
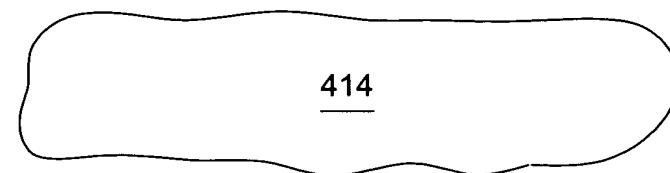
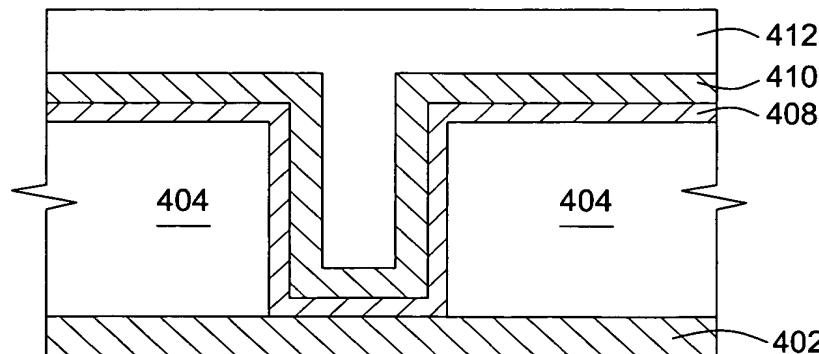


FIG. 4C





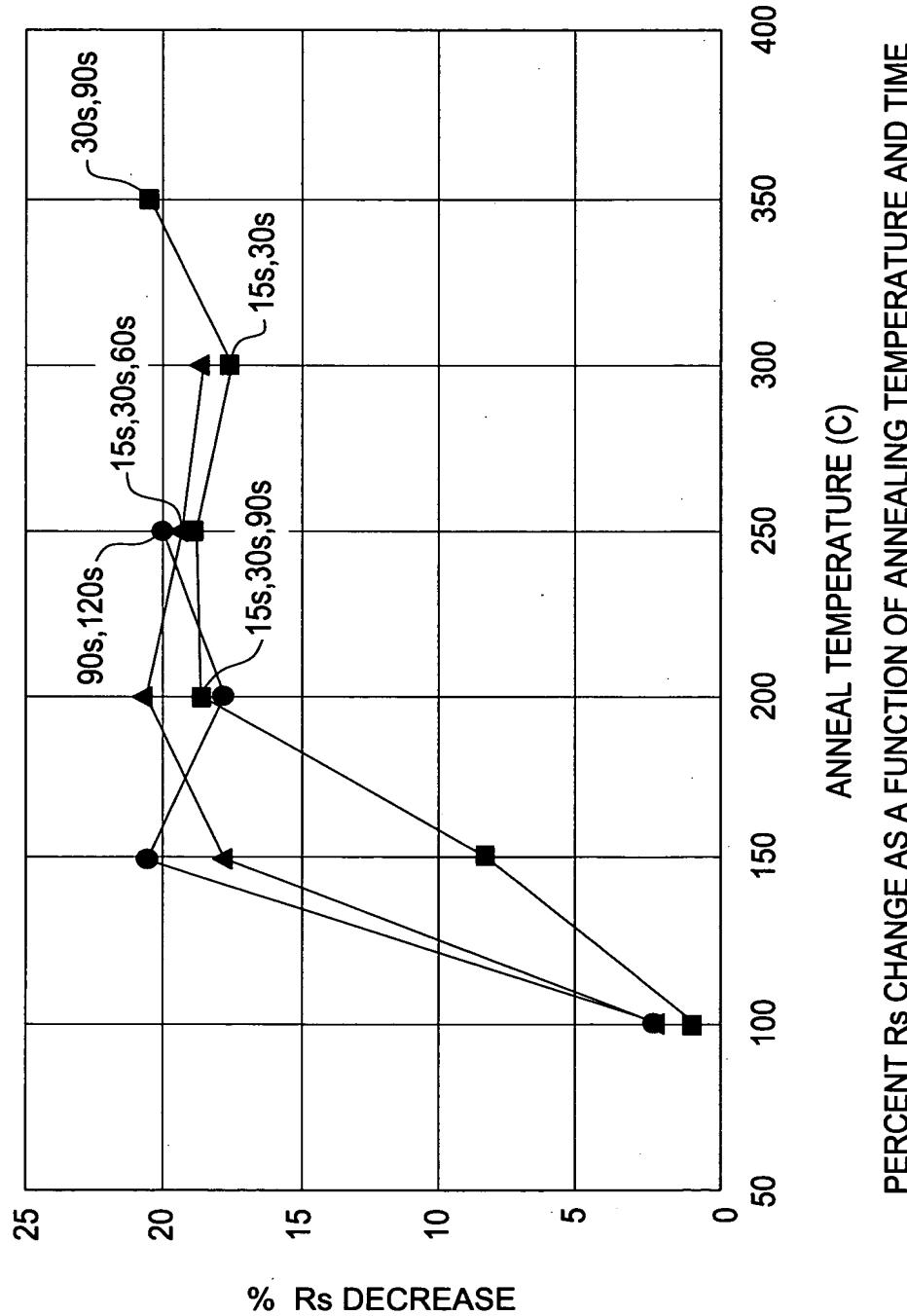
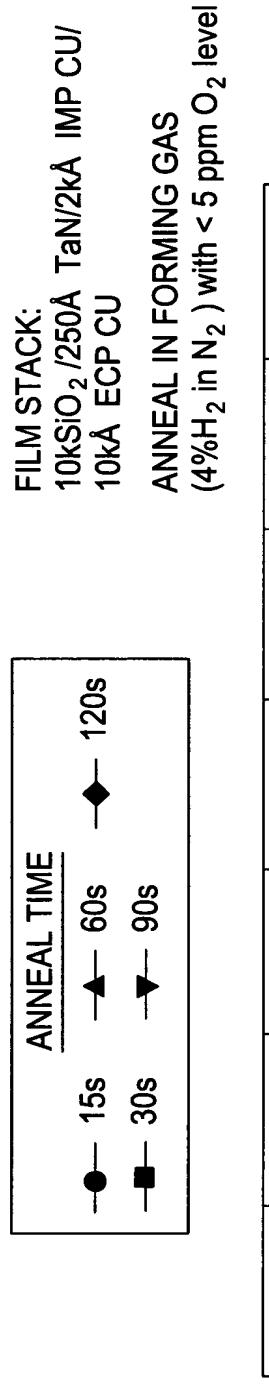
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FIG. 5



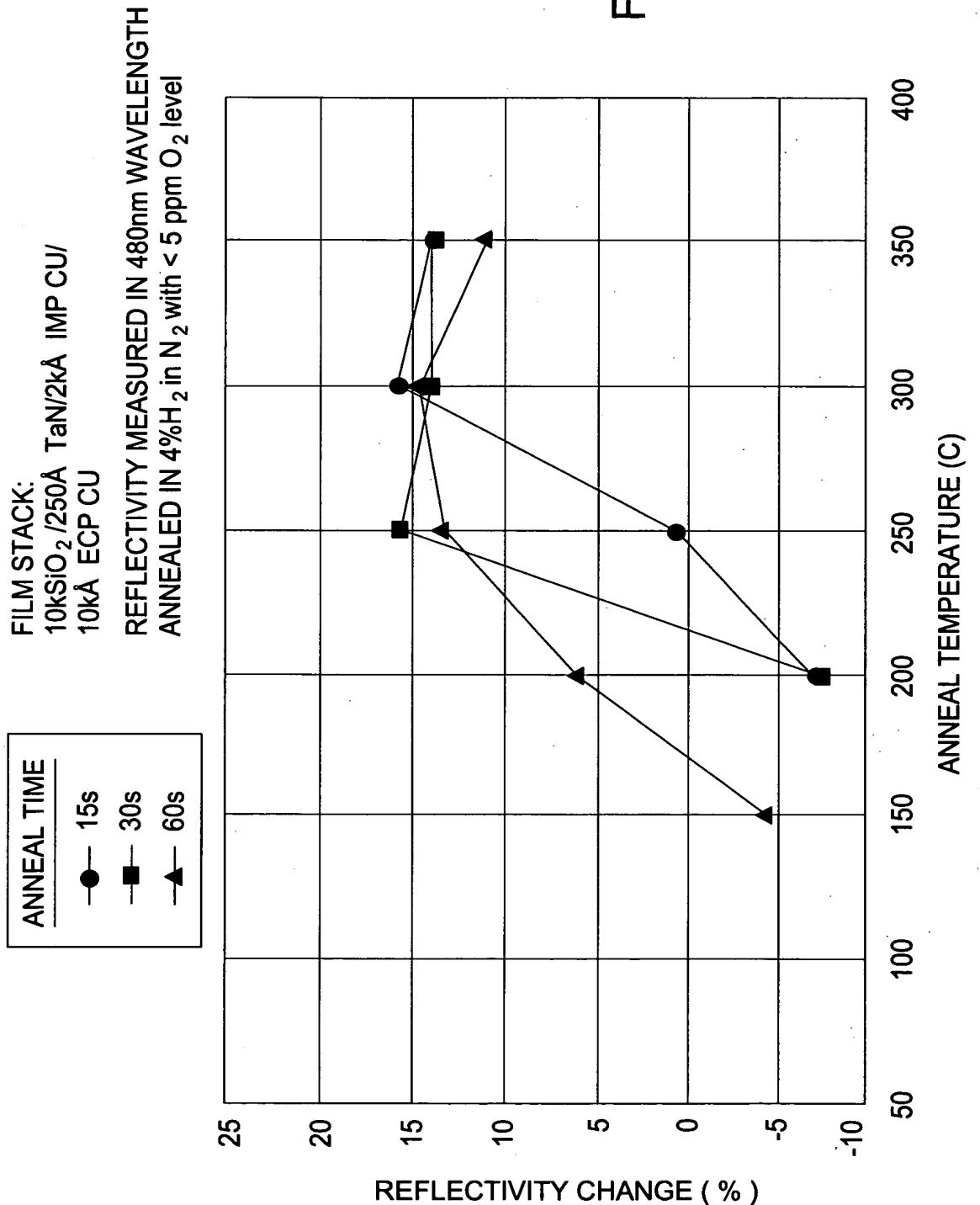


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FIG. 6





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FILM STACK:
10kSiO₂/250Å TaN/2kÅ IMP CU/
10kÅ ECP CU

ANNEALED AT 300C IN <5ppm O₂ LEVEL ATMOSPHERE
REFLECTIVITY MEASURED AT 480nm WAVELENGTH

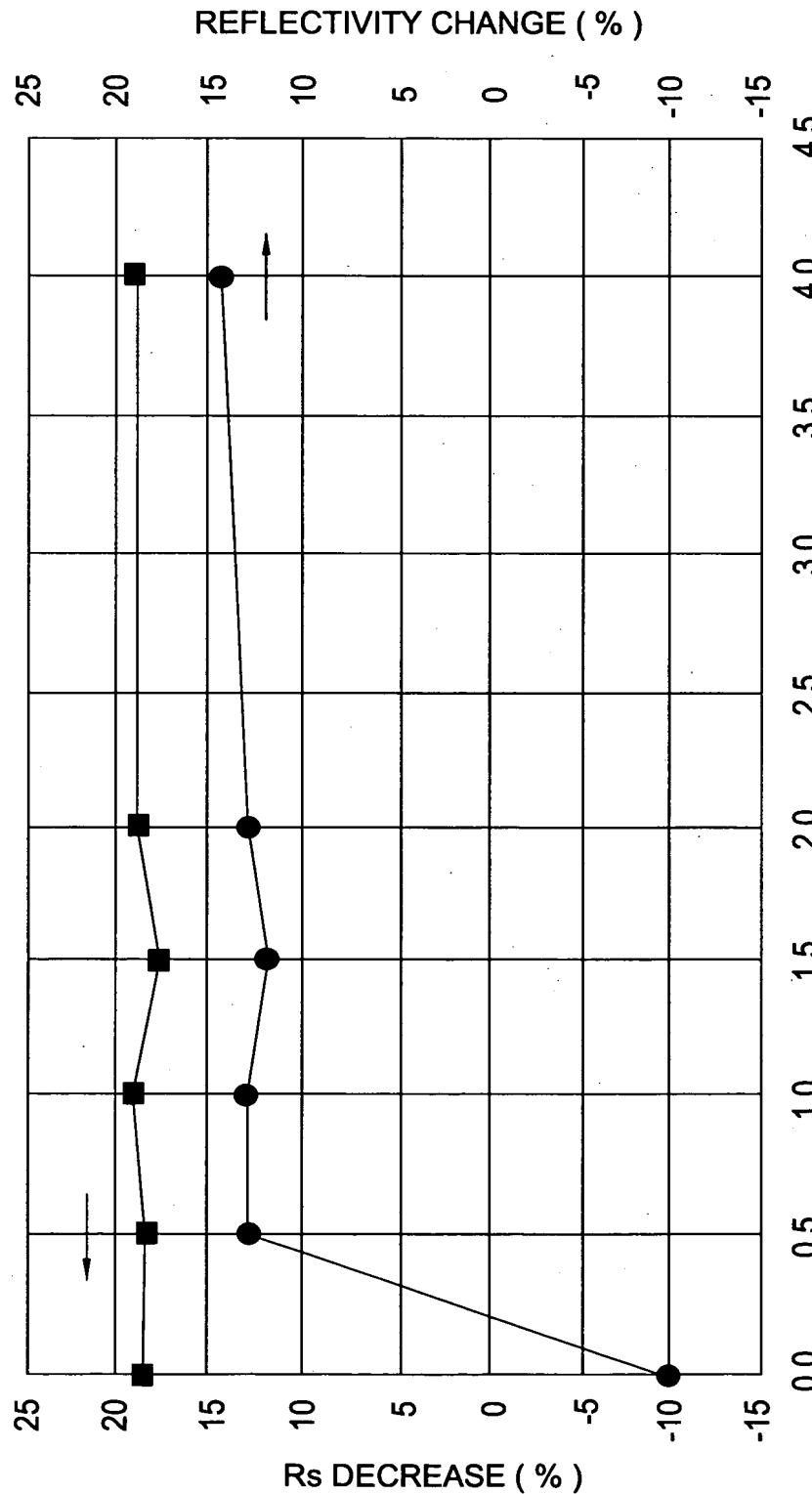


FIG. 7

Rs DROP AND REFLECTIVITY CHANGE AS A FUNCTION OF HYDROGEN CONTENT IN CHAMBER



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- + NO ANNEAL
- 15s ANNEAL
- △ 30s ANNEAL
- × 60s ANNEAL
- 120s ANNEAL

CMP POLISHING RATE AS A FUNCTION OF ANNEALING TEMPERATURE

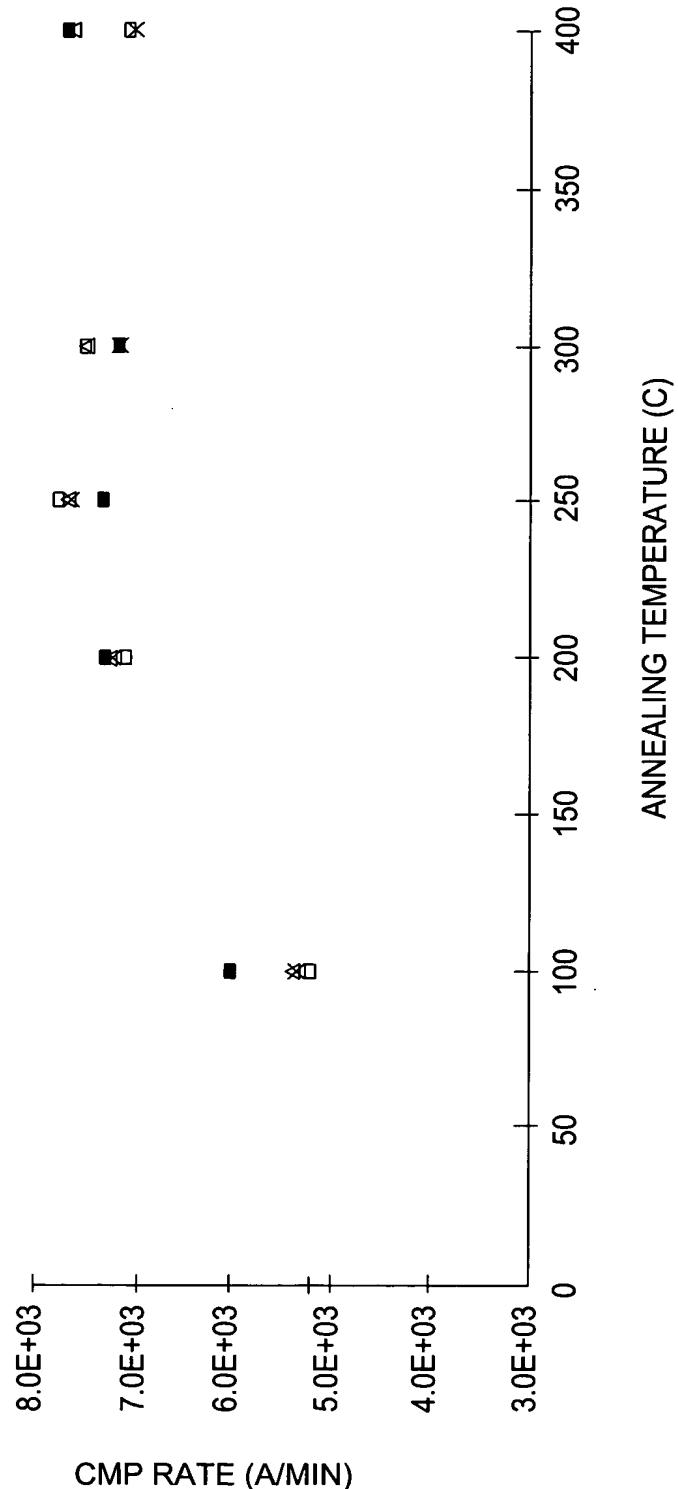


FIG. 8